

REMARKS/ARGUMENTS

1. The Drawings Do not Need to be Amended

The Examiner objected to the drawings on the grounds that they did not show "255" as the output value, but instead showed "0xFF". (Office Action, pg. 2) Applicants traverse this objection for the following reasons.

First off, the drawings show at block 210 an output of "0xF", not "0xFF" as the Examiner contends. Further, both the Specification and Drawings are entirely consistent, in that both disclose that if the input pel has a value of 255 at block 208, then the output at block 210 is the hexadecimal value of "0xF", which is 15 or full saturation. See, FIG. 3, blocks 208 and 210 and Application, pg. 8, line 27 to pg. 9, line 3. Thus, no correction is needed to either the Drawings or Specification in this regard because both are consistent and the objection should be withdrawn.

2. Claims 1, 3, 4, 5, 7-9, 17, 19-21, 23-25, 33, 35-37, and 39-41 are Patentable Over the Cited Art

The Examiner rejected claims 1, 3, 4, 5, 7-9, 17, 19-21, 23-25, 33, 35-37, and 39-41 as obvious (35 U.S.C. §103) over Yoshida (U.S. Patent No. 6,195,468) and Ostromoukhov (U.S. Patent No. 5,438,431). Applicants traverse for the following reasons.

Independent claims 1, 17, and 33 concern for halftoning data for an output device capable of rendering multiple intensities and require: receiving input values; for each received input value, performing: (i) using the input value as an output value if the input value is a predetermined value; and (ii) halftoning the input value to produce an output value used to render one of multiple intensities if the input value is not the predetermined value.

Applicants submit that the cited sections of Yoshida do not teach or suggest the claim requirement of using the input value as an output value if the input value is a predetermined value.

The cited col. 14, lines 23-30 discusses an image conversion device having keyboard, display, storage, etc. The cited col. 15, lines 4-9 mentions that pseudo-half-tone image data has a binary value of either ON (1) or OFF (0). (Office Action, pg. 3) Nowhere do the cited cols. 14

and 15 anywhere teach or suggest the claim requirement of using the input value as an output value if the input value is a predetermined value.

The Examiner cited col. 19, lines 23-41 as teaching the claim requirement of using the input value as an output value if the input value is a predetermined value. (Office Action, pg. 4) Applicants traverse.

The cited col. 19 mentions that an input conversion portion H1 receives an input density data of I within a range of 0 to 255. If the input density is equal to a minimum value (0) or maximum value (255), then H1 issues a first and second commands, respectively to output conversion portion H4 to control the output conversion portion H4 to output pixel data of OFF or On, respectively.

Nowhere does the cited col. 19 anywhere teach or suggest the claim requirement of using the input value as an output value if the input value is a predetermined value. Instead, of using the input value as the output value as claimed, the cited col. 19 of Yoshida has an output conversion portion H4 output ON or OFF for the input value. Thus, the cited Yoshida teaches away from using the input value as the output value and instead teaches that a conversion portion produces an ON or OFF value for the input value.

The Examiner cited col. 19, lines 48-51, 61-64 and col. 20, lines 1-3 as teaching the claim requirement of halftoning the input value to produce an output value used to render one of multiple intensities if the input value is not the predetermined value. (Office Action, pg. 4) Applicants traverse.

The cited col. 19 mentions that the conversion portion H1 output the received input density I when the input density is in the range of 1-254. Col. 19 further mentions that another modification portion H2 calculates a modified density I' by adding the density value I from input conversion H1 with the error sum e, and the modified density I' is sent to the binary conversion portion. The cited col. 20 mentions that if the modified value I' is greater than a threshold, then binary conversion portion H3 issues an instruction to output conversion portion H4 to output a value of ON, and if I' is smaller, H3 issues an instruction to H4 to output a value of OFF. Nowhere do these cited cols. 10-20 teach or suggest the claim requirement of halftoning the input value to produce an output value used to render one of multiple intensities if the input value is not the predetermined value. Instead, the cited cols. 19-20 discuss producing different ON and OFF values to different conversion portions.

The Examiner did not cite Ostromoukhov for any of the above discussed claim limitations. Thus, even if it is appropriate to modify Yoshida with Ostromoukhov, such modification does not teach or suggest the requirements of the claims because the sections of Yoshida the Examiner cited for the above discussed claim requirements do not teach or suggest these claim requirements.

Accordingly, claims 1, 17, and 33 are patentable over the cited art.

Claims 3, 4, 5, 7-9, 19-21, 23-25, 35-37, and 39-41 are patentable over the cited art because they depend from one of claims 1, 17, and 33, which are patentable over the cited art for the reasons discussed above. Moreover, the following dependent claims provide additional grounds of patentability over the cited art for the below discussed reasons.

Claims 3, 19, and 35 depend from claims 1, 17, and 33 and further require that the predetermined value represents full saturation. The Examiner cited col. 19, lines 25-26 of Yoshida and the statement that 255 is the maximum value as teaching this claim requirement.

The cited col. 19 mentions that if the input density is the maximum value of 255, then the output conversion portion outputs a pixel data of ON. This does not teach the claim requirement of using the input value as the output value if the input value is the value of full saturation.

Accordingly, claims 3, 19, and 35 provide additional grounds of patentability over the cited art.

Claims 5, 21, and 37 depend from claims 1, 17, and 33 and further require that there are two predetermined values, and wherein the input value is used as the output value if the input value is one of the predetermined values. The Examiner cited col. 19, lines 24-35 of Yoshida as teaching the additional requirements of these claims. (Office Action, pg. 5) Applicants traverse.

The cited col. 19, lines 24-35 mentions that if the input density is the maximum value of 255, the conversion portion H4 outputs a binary pixel data of ON and when the input density is zero, then the output conversion portion H4 is controlled to output binary pixel data of OFF. Nowhere, does the cited col. 19 anywhere teach or suggest the claim requirement of using the input value as the output value if the input value is one of the predetermined values. Instead, the cited col. 19 uses binary values of ON or OFF depending on whether the input density is a maximum or minimum value, not using the input value as the output value as claimed.

Accordingly, claims 5, 21, and 37 provide additional grounds of patentability over the cited art.

Claims 9, 25, and 41 depend from claims 7, 23, and 39, which require that the input value is in a first intensity range and the output value is in a second intensity range of values that are capable of being rendered by the output device. Claims 9, 25, and 41 additionally require that the first and second intensity ranges comprise a plurality of intensity values, and wherein the first intensity range has fewer intensity values than the second intensity range.

Thus, claims 8, 24, and 40 require that the input value is in a first intensity range that has a greater number of values than the second intensity range including the output value. The Examiner cited col. 7, lines 3-9 and 40-42 of Ostromoukhov as teaching the additional requirements of these claims. (Office Action, pg. 5) Applicants traverse.

The cited col. 7 mentions that there may be 257 distinct intensity levels, but that the input image is usually coded on eight bits providing 256 levels. The output device has p different levels.

Nowhere does the cited Ostromoukhov teach or suggest that the second intensity range, of the output value, has greater intensity values than the first intensity range of the input image. Ostromoukhov mentions that the input image may have 256 different levels and that the output device may have p levels. Nowhere does the cited Ostromoukhov anywhere teach or suggest that the number of levels of the output device (p) is greater than the 256 possible levels for the input image.

Accordingly, claims 9, 25, and 41 provide additional grounds of patentability over the cited art.

3. Claims 2, 6, 18, 22, 34, and 38 are Patentable Over the Cited Art

The Examiner rejected claims 2, 6, 18, 22, 34, and 38 as obvious (35 U.S.C. §103) over Yoshida, Ostromoukhov, and Kamon (U.S. Patent No. 5,920,646). Applicants traverse.

Claims 2, 6, 18, 22, 34, and 38 are patentable over the cited art because they depend from one of claims 1, 17, and 33, which are patentable over the cited art for the reasons discussed above.

4. Claims 11-14, 16, 27-30, 32, 43-46, and 48 are in Condition for Allowance

The Examiner found that claims 11-14, 16, 27-30, 32, 43-46, and 48 would be allowed if written in independent form including the requirements of the base and any intervening claims.

Applicants submit that these claims are in condition for allowance in their current form because they depend from one of claims 1, 17, and 33, which are patentable over the cited art for the reasons discussed above.

Conclusion

For all the above reasons, Applicant submits that the pending claims 1-48 are patentable over the art of record. Applicants have not added any claims. Nonetheless, should any additional fees be required, please charge Deposit Account No. 50-0563.

The attorney of record invites the Examiner to contact him at (310) 553-7977 if the Examiner believes such contact would advance the prosecution of the case.

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By: _____

David W. Victor
Registration No. 39,867

Please direct all correspondences to:

David Victor
Konrad Raynes & Victor, LLP
315 South Beverly Drive, Ste. 210
Beverly Hills, CA 90212
Tel: 310-553-7977
Fax: 310-556-7984